

# The Effect of Household and Community on School Attrition: An Analysis of Thai Youth

KIM KORINEK AND SUREEPORN PUNPUING

We analyze school attrition among youth in Kanchanaburi province, Thailand. We find that family investments in schooling are shaped by both household and local community contexts. There is an enrollment advantage for girls across different households and communities. We find that youth whose mothers have migrated and youth in immigrant households are at greater risk of leaving school. Attrition is negatively associated with household educational and economic resources. The local labor market, especially the supply of professional and managerial work, positively affects family investment in children's education. For girls, but not boys, the odds of leaving school are lower in communities dominated by manufacturing and services occupations, which disproportionately employ young women. Our findings highlight the obstacles to achieving universal secondary schooling completion in societies characterized both by entrenched inequalities as well as new inequalities brought about by uneven development, feminization of labor, migration, and other processes related to globalization.

Middle-income and newly industrialized societies face an elusive goal: extending schooling through the secondary level to attain universal secondary enrollment and completion. The challenge of ensuring "education for all" unfolds in conjunction with rapid global social change within developing countries where broad segments of youth face uncertainty in the transition to adulthood (Lloyd et al. 2005). Several studies find stagnation in the recent expansion of secondary schooling, a troubling finding given the robust, positive associations between secondary enrollments and economic welfare and health (Binder 2006, 455; Hannum and Buchmann 2006). Many low- and middle-income countries, including Thailand, are likely to fall short of the UN's Millennium Development Goals for universalizing primary and secondary education by 2015 (Glewwe and Zhao 2006). In Thailand, the setting for this research, education statistics and ethnographic accounts suggest that secondary schooling, although technically compulsory to twelfth grade, remains out of reach for sizable segments of the youth population (Soonthornthada et al. 2001). And Thailand is not unique; nearly one-quarter of

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the world's children ages 6–17 are not enrolled in primary or secondary school (Cohen et al. 2006, 3).

An extensive literature provides an evolving consensus on the factors, ranging from gender to parental education and family wealth, that influence schooling persistence and attrition among youth in developing countries (Buchmann and Hannum 2001; Stash and Hannum 2001). Yet, few studies systematically analyze processes associated with economic globalization, such as labor migration, the feminization of labor, and the distinctive, uneven patterns of economic development that impact households and communities and thereby contextualize family decision making about education investments. We posit that processes of economic globalization play a critical role in emerging educational disparities by shaping family composition and resources and structuring access to institutions of education and employment. While economic development and educational expansion occur at the macro level, young people observe distinctive opportunities and resources depending on the incorporation of their families and communities into globalizing processes. In Thailand's western province of Kanchanaburi, the site of our study, the combination of such globalizing forces has influenced the family and community structures in which youth are embedded, the returns to their education, and, consequently, the decisions they make about continuing or leaving school and seeking employment.

Often examined through lenses of family economy, resource dilution, and human capital theories, the decision to leave school has been attributed to a combination of individual, family, and community-level factors that influence the opportunity costs associated with school enrollment (Walters and O'Connell 1988). For Thai youth, decisions about education occur in communities and households defined by marked regional inequalities, high levels of population mobility, income insecurity, and other risks common to globalizing, developing economies. In this article we examine household- and community-level correlates of school attrition among Thai youth, highlighting households' and communities' varied involvement in Thailand's development and population migration experiences as they are tied to economic globalization, so as to provide novel insights into contemporary education disparities.

### **Economic Globalization and Perspectives on Investment in Schooling**

As girls' educational enrollment and attainment surpasses that of boys (Huisman and Smits 2009; Grant and Behrman 2010), many long-standing education inequalities are giving way to new lines of stratification. Changing gender disparities in education largely stem from globalizing macro environments that have shifted ideologies regarding education for girls and increased the returns to girls' schooling, often at the same time that opportunity costs associated with girls' schooling have diminished through expansion of

educational programs. The framework of analysis we apply to school attrition in Kanchanaburi places education investment in a broader context of globalizing economies and mobility, highlighting how these processes shape the local contexts and households within which schooling decisions are made. Recent scholarship observes that the transition to adulthood is influenced by particular “assemblages of local and global elements” in which youth act and make choices (Larson 2002, 2). Monisha Bajaj (2010) further notes that a community’s place within the global and national economic system influences local opportunities and, hence, the meanings of education. We posit that new disparities are generated simultaneously with macro-level education expansion because processes of economic globalization structure institutional access to educational resources and generate the opportunity costs associated with schooling.

Scholars John Knodel and Gavin Jones (1996) have noted that socioeconomic differentials in schooling attainment are ubiquitous and entrenched. However, the particular dimensions of socioeconomic status that are relevant to educational investment are less definitive. Parental education and employment, as well as the income, wealth, and size of families continue to shape schooling attainment in developing countries (Lillard and Willis 1994; Fuller, Singer, and Keiley 1995; Pong 1997; Buchmann 2000; Schafer 2004, 2006). Other research indicates macro-structural changes and community factors such as modernizing influences, rural isolation, nongovernmental organization presence, and mismatched educational credentials and labor opportunities contribute to educational attainment (Fuller et al. 1995; Buchmann 2000; Buchmann and Brakewood 2000; Schafer 2004; Huisman and Smits 2009).

Arguably, social, economic, and population dynamics, stirred by global economic relations, are creating new classes of youth for whom secondary education is out of reach. For instance, transnational foreign investment spurs migration across and within borders, altering family organization and social belonging in ways that structure the human and social capital of youth and thereby decisions about schooling investment. Those on societal margins are likely not only to be from poor and poorly educated families but also to be from ethnic minority or immigrant subpopulations that face additional barriers due to institutional discrimination. Where secondary education is compulsory but not free, the often excessive costs of education are related not only to a household’s socioeconomic position but also depend upon access to credit, the fragmented opportunities available to youth within local opportunity structures, and youth’s social positions vis-à-vis educational and labor market institutions, the latter being increasingly shaped by transnational capital and production for the global marketplace.

Starting with family economy and resource dilution theories, we append observations on globalization, and the spatially uneven economic develop-

ment processes inherent in globalization, to arrive at novel hypotheses on school attrition. From the perspective of family economy theorists, the decision not to invest in schooling may occur when the costs are deemed excessive or when anticipated returns to schooling are few or uncertain—an outcome relating to the child's social position and extant patterns of economic growth and inequality (Buchmann and Brakewood 2000). Recent research conducted in Namibia's Copperbelt region describes the frustration among youth where educational participation has become disconnected from future employment and prospects for job mobility are uncertain due to recent foreign direct investment, structural adjustment programs, and other forces of economic globalization (Bajaj 2010). Controlling for a family's wealth and human capital resources, one might expect that aspirations for, and investments in, education to be dampened if a child's education is unlikely to be rewarded in the local context and/or if social structures restrict labor market mobility for one's social group. As we elaborate, social divisions based on ethnicity and/or immigration status are likely to become increasingly salient factors delineating access to educational and labor market institutions. On the other hand, girls, once hampered by restrictive role expectations and discrimination, may be seen as worthy of educational investment given their increased prospects in an expanding educational system and globally integrated, feminizing labor force.

#### **Family Economy and Schooling in the Context of Economic Development and Labor Mobility**

Net of family financial resources, children with highly educated parents have greater odds of enrollment, a pattern often attributed to well-educated parents' anticipation of education's long-term benefits (Lillard and Willis 1994; Tzannatos 2003; Brown 2006). The perceived connection between educational investment and future outcomes depends upon a child's social position vis-à-vis ethnicity, religion, or class origins and the mix of local employment opportunities available to a child of a given status (Walters and Briggs 1993; Jao and McKeever 2006). Immigration—especially of refugees and migrant workers from Myanmar—is rapidly creating a foreign-born population within Thailand with economic and educational fates constrained by cultural and linguistic differences, biased treatment, and noncitizenship (IRIN 2009). Transborder population movements not only are a hallmark of twenty-first-century globalization (Castles and Miller 2003) but also stand to alter patterns of stratification in receiving societies. Research in long-standing immigrant destinations such as the United States and Western Europe suggests that the children of immigrants, especially those likely to face racial, ethnic, or cultural discrimination (e.g., Mexicans in the United States, Moroccans in Holland), are more likely to drop out of school (Perreira, Harris, and Lee 2006; Joppke 2007). As Thailand diversifies through cross

border migration, we might also expect emerging lines of disparity linked to national origin. Descriptive research illustrates the relatively low rates of school enrollment among Burmese, Lao, and Cambodian youth in Thailand (Huguet and Punpuing 2005). In this study, we ascertain the role of immigrant status in school attrition and how immigrant youth and the children of immigrants fare with respect to Thailand's goal of universalizing secondary education.

Distinctive patterns of economic growth and labor mobility in Thailand related to its economic expansion and position in the global economy have given rise to unique family structures and logics for investment in child schooling. Migration is a common tactic for rural Thai households to employ, given the country's highly uneven distribution of economic growth. As a result of migration patterns, school-age children are frequently raised in households with an absent father or mother, or in "skip-generation" households where grandparents are the only adults present (Knodel et al. 2007). While many studies examine sibship size as it pertains to child school investment (Knodel and Wongsith 1991; Downey 1995; Anh et al. 1998; Curran et al. 2004; Rankin and Aytac 2006), few have looked beyond this aspect of family composition to assess how alternative household structures influence decision making related to youth schooling. While large numbers of siblings may dilute material and social resources within families, other aspects of family structure—including the presence of grandparents and other older adults—may influence the quantity and quality of resources families are able to allocate to children's education (Roscigno and Ainsworth-Darnell 1999; Deolalikar 2002).

Migration commonly yields material resources through remittances, which can enhance available funding for education (Acosta 2006; Vogel and Korinek 2012). However, migration also creates gendered patterns of parental absence, which may weaken supervision and available resources to reinforce school attendance and continuity (Zachariah et al. 2001; Dreby 2007) and may result in additional labor expectations for children (Bansak and Chezum 2009). Studies in the region largely concur that mothers' absences exert stronger, more negative effects on youth schooling than do fathers' absences (Batistella and Conaco 1998; Joshi 2004; Jampaklay 2006). Moreover, scholars have shown that mothers and fathers often diverge in their investment preferences: mothers tend to prefer greater spending on education and other expenses related to child welfare (Thomas 1994; Pasqua 2005). On a practical level, when a mother is away, children's behavior (e.g., school attendance, studying) may differ as compared to when a father is absent. Thus, enrollments will likely vary depending on mothers' and fathers' presence in school-age children's day-to-day lives.

Reflecting globalizing patterns of feminized migration and feminized employment (Standing 1989), as well as family ideologies consistent with the

second demographic transition, substantial proportions of school-age children in Thailand reside at a distance from their fathers and/or mothers. Taking into account confounding factors such as levels of human capital within households, we reason that the economic and cultural currents contributing to the geographic dispersion of family members, in particular those placing mothers at a distance from young children, will tend to weaken investment in children's education. The distinctive impacts of divorce and migration-related parental absence warrant investigation in Thailand, where rural-urban migration is commonplace and the divorce rate has increased substantially in recent decades (UNIFEM 2000; Ekachai 2001).

Families in economies stricken by risk and uncertainty often formulate economic strategies in light of market volatility, natural and man-made disasters, and weak credit markets (Thorbecke and Charumilind 2002). Thus, aside from inequality in wealth and income, unequal access to credit results in credit constraints that weigh more heavily on poor families already struggling to meet the costs associated with schooling. Several studies have found that children are more likely to be working and less likely to be in school in households and communities lacking adequate access to credit (Flug et al. 1998; Ersado 2005). While small, uncollateralized loans are available across Thailand, more substantial commercial bank lending is relatively limited to urban areas of central Thailand and to wealthier borrowers with adequate collateral, thus placing credit constraints upon small business entrepreneurship in less developed, relatively remote areas of the country (Paulson and Townsend 2004). This unequal access to credit, we reason, is also relevant to child schooling investment, furthering inequalities in enrollment and attainment.

#### **Local Labor Markets, Feminization of Labor, and Decision Making about Child Schooling**

Human capital and technical functional theories posit that growth of modern manufacturing and service sectors in developing countries will foster school enrollment as young people compete for relatively coveted positions outside of agriculture (Buchmann and Brakewood 2000). The spatial patterning of employment opportunities, occasioned by foreign direct investment and export-led development processes in middle-income and newly industrializing countries like Thailand (Knodel 1997; Hawley 2004) exacerbates inequalities, which filter down to structure schooling incentives (Mills 1999). Households of similar socioeconomic position may use different calculus and arrive at different decisions for educating sons and daughters if they are embedded in different institutional contexts—for instance, contexts differentiated by high versus low levels of nonagricultural employment or by schools that are nearby or distant (Fuller and Liang 1999; Shafer 2004). Therefore, local schooling environments and regional economic structures should be addressed in models of school attrition, as these contexts inform

trade-offs between decisions to continue in school versus seek employment (Gill 1991; Roscigno 1994; Buchmann and Brakewood 2000; Roscigno, Tomaskovic-Devey, and Crowley 2006).

Even during educational expansion, returns to girls' education likely will remain weak if women's employment opportunities are limited compared to men's. Thailand's economic growth in the 1980s and 1990s resulted from expanding export-oriented manufacturing, especially textiles and skilled medium-tech production (e.g., electronics), which enhanced demand for a more educated workforce and often favored young, female laborers (Sundaram and Chen 1997; Asian Development Bank 1998; Mills 1999). The rise of industries favorable to hiring young female workers also influenced the gendered logic around child school investment (Brinton, Lee, and Parish 1995; Pattaravanich et al. 2005). If enrollments are indicative of perceived returns to educating sons and daughters, given gender expectations in families and prevailing gender patterns of employment, it follows that investment in girls' schooling will reach, if not surpass, investment in boys' schooling in contexts where household resources are adequate and where returns to girls' schooling are more certain and substantial than boys' (Walters and Briggs 1993). In Kanchanaburi, and in other areas of Thailand, it may be the case, in fact, that girls' schooling has come to be seen as more definitive in its rewards than boys' schooling. Thus, we expect that the risk of dropping out to be lower among girls than boys in an array of contexts, including relatively economically disadvantaged households and especially in local economies that have diversified beyond agriculture into services and manufacturing sectors that tend to reward girls' human capital on par with, or even beyond, that of boys.

#### **Education and the Transition to Adulthood in Thailand and Kanchanaburi**

Thailand's education system has transformed alongside the rapid economic expansion of the late twentieth century. Although most Thai youth transition to lower secondary education (i.e., grades 7–9), a far smaller share transition to the upper secondary level (grades 10–12) or beyond, making the lower-to-upper secondary transition particularly critical for policy makers seeking to universalize secondary enrollments (Ministry of Education 2009a). Grade transition rates decline most precipitously at the major level transition points (especially between grades 9 and 10), with nonnegligible numbers attriting in the midst of lower and upper secondary levels.

Following historical difficulties in educational expansion, and motivated by changing workforce demands, the Thai government made substantial educational reforms in the 1990s (Asian Development Bank 2007). Several recent policies, including geographic expansion of primary and secondary school, constitutional mandates raising compulsory schooling to 12 years, and recent "free education with quality" provisions, have altered the range

of available educational opportunities and associated costs and thereby raised secondary enrollments to levels that surpass those of many Southeast Asian countries (Benveniste 2006; Ministry of Education 2009b).

Policy changes notwithstanding, compulsory schooling legislation is neither perfectly implemented nor adhered to in Thailand. Although lower secondary enrollment rates improved notably from 2000 to 2004, upper secondary enrollments mostly held steady, at around 37 percent in the general track and 21 percent in the vocational track (Ministry of Education 2009a). Focus group interviews conducted in Kanchanaburi in 2001 found that youth were often not affected by Thai compulsory schooling policies due to lax local enforcement and the fact that schooling costs (e.g., tuition, books, uniforms) still had to be subsumed by parents (Soonthornhdhada et al. 2001). In contrast to many other modernizing Asian societies, Thailand exhibits egalitarianism in child gender preference and even a slight preference for girls in villages where it is believed that daughters will provide care for aging parents (Wongboonsin and Prachuabmoh 1995). Economic and educational expansion in recent decades has had especially marked effects on girls, whose schooling attainments now outpace those of boys (Knodel 1997). Shifting labor market opportunities associated with economic globalization, which have facilitated the formal employment of young women and reduced the gender earnings gap, are cited as one of the macro-level societal shifts reducing the gender gap in secondary schooling (Pattaravanich et al. 2005; Nakavachara 2010). Although particular gaps have narrowed, such as that once separating boys and girls, others persist, such as those dividing youth by socioeconomic background. As a result, Thai government efforts to achieve universal secondary enrollment continue to be frustrated (Benveniste 2006).

### **Kanchanaburi Province**

Our study site is Thailand's third-largest province. Kanchanaburi shares a lengthy, mountainous border with Myanmar (Burma). The social, economic, and ecological diversity of the province, as well as the substantial residential mobility among its residents, make Kanchanaburi a fertile ground for examining how socioeconomic circumstances and migration within families influence schooling. Kanchanaburi city and its semiurban fringe are the sites of major manufacturing, tourism, and other industrial development in recent years. The province also incorporates a range of mixed-economy villages, areas that have developed specialized forms of plantation agriculture, and remote villages where upland agriculture is practiced by both Thai and ethnic minority peoples.

Table 1 illustrates mean differences in the household characteristics of Kanchanaburi Demographic Surveillance System (KDSS; IPSR 2008) youth ages 11–14 in 2001, as they vary across community strata. Across several measures pertinent to family economy and schooling, youth in urban and



TABLE 1  
SELECT CHARACTERISTICS OF STUDY STRATA IN KDSS ANALYTICAL SAMPLE, 2001

	KDSS Strata				
	Urban/ Semiurban	Rice Field	Plantation	Uplands	Mixed Economy
No. youth ages 11–14 in analytical sample, 2001	577	516	524	997	588
Mean no. children ages 0–15 in youth households	2.0	2.1	2.0	2.5	2.1
Share of youth in strata with immigrant parent(s) (%)	.0	.0	.0	27.1	2.7
Share of youth whose mothers have no formal schooling (%)	4.0	10.9	21.2	47.6	11.9
Share of youth whose fathers have no formal schooling (%)	1.4	5.0	7.6	36.7	6.1
Mean household wealth index score	9.3	5.0	4.1	2.4	6.0
Resident adults employed in agriculture (%)	18.3	73.2	79.3	78.4	64.9
Resident adults employed in services, manufacturing, labor (%)	63.8	24.3	18.6	17.5	30.0
Resident adults employed in professional, managerial, clerical occupations (%)	18.0	2.5	2.4	4.2	5.1
Resident adults not in labor force (%)	15.8	9.4	8.8	14.4	10.7

SOURCE.—Kanchanaburi Demographic Surveillance System (IPSR 2008).

semiurban households are most favorably situated. Upland villages are distinguished by several intertwined characteristics related to child schooling, including greater economic deprivation, predominance of agriculture, high prevalence of non-Thai populations, and higher youth dependency levels relative to lowland, and especially urban, communities. In various ways, then, the social and economic structure and ecological diversity of Kanchanaburi resembles the larger Thai population.

### **Hypotheses**

Our main hypotheses highlight globalization's varied impact on Thai families and communities and how these impacts shape school attrition across adolescents. First, we note that geographic mobility often places youth at a distance from their migrant parents. Additionally, in the face of uneven economic development and political instability, entire families may move across borders, placing youth in destination communities where their immigration status and ethnicity makes them weakly integrated newcomers. Because Thai nationality delimits access to resources, such as free access to schooling, and because the foreign-born are often marginalized in the workforce, youth in immigrant households, net of other factors, will be especially inclined to drop out.

**H1:** Youth immigration status will inversely affect school enrollment and persistence.

Migration also affects enrollment and persistence by creating single-parent and skip-generational households. Thailand has also witnessed rising rates of divorce in the preceding decades, which further influences family composition. Physical separation between Thai parents and their children has implications for educational outcomes.

**H2:** Residential separation from parents will positively affect student dropout.

**H3:** Residential separation from mothers, as compared to fathers, will exert a stronger effect on children's school dropout.

The material resources available within households, as well as human capital resources, are salient to decisions about child educational investment. Access to credit markets has not been widely considered as a factor that influences credit constraints and, thereby, investment in child schooling.

**H4:** Access to loans, indicated by household indebtedness, will inversely affect child dropout.

In line with family economy and human capital theory (Becker 1978; Buchman and Brakewood 2000), we reason that in areas where low-skill and low-wage jobs abound, and where high-skill and high-wage jobs are limited, perceived returns to advanced schooling will be low and young people will be pulled out of schools and into the labor market. Families' decisions about investing in child schooling are embedded in local contexts whose structures partly determine whether additional schooling will be beneficial for youth employment opportunities and family welfare. The unevenness of economic development has created unequal local job opportunities for youth across Kanchanaburi. Only some youth see opportunities to labor in factories, in tourism-related industries, or in service establishments close to their village homes (Soonthorndhada et al 2001).

- H5:** Greater local employment opportunities for individuals with secondary schooling experience will be correlated to lower attrition rates.

However, given gender segregated labor markets, and greater recruitment and representation of young women in manufacturing and services jobs, we hypothesize that families will invest greater resources in girls' schooling, hence lessening their odds of leaving school at a relatively young age as compared to boys. This gender enrollment effect is likely to be more pronounced in local settings with a relative preponderance of jobs in manufacturing and services jobs, and hence more certain returns to girls' schooling investments.

- H6:** Families will invest more in girls' schooling than boys' schooling, resulting in greater educational persistence for girls.
- H7:** Families' investment in girls' schooling as compared to boys' schooling will be moderated by local employment structures, with girls being especially less likely to drop out in communities with relatively high levels of nonagricultural employment.

## Data and Method

The data that we use to analyze youth schooling patterns and determinants of school attrition come from the Kanchanaburi Demographic Surveillance System (KDSS), an extensive data resource of the Institute for Population and Social Research (IPSR), Mahidol University, and funded primarily by the Wellcome Trust, United Kingdom. The KDSS began with a census of households, and individuals ages 15 and older within said households, in 100 villages and urban districts of Kanchanaburi province. This census was

repeated in the years 2001–4, thereby creating repeated measures on households and their members over 5 years. New and split households were incorporated into the KDSS each year. However, households and individuals who moved out of KDSS communities between survey years were not followed up for interviews.

In order to capture the economic and ecological diversity of the province, the 100 study communities were selected through a stratified sampling of all communities in the province, with strata defined by economic activity and land use patterns. Twenty study areas were chosen using systematic random sampling from each of the following five strata: (1) urban/semiurban communities; (2) communities in which irrigated rice fields predominate; (3) communities in which cassava and sugarcane plantations predominate; (4) communities in highlands districts; and (5) communities with mixed economies, that is, rural villages where the majority of households are engaged in nonagricultural activities. This approach yielded 87 villages and 13 urban census blocks within which a complete census was conducted of households and their members. The response rate for each year's data collection was relatively high; in 2001 80 percent of households enumerated by local officials were located and involved in the data collection, and 90 percent of individuals within said households provided information to KDSS staff (IPSR 2003). The main reason for household nonresponse was not refusal but, rather, inability to contact households on the roster due to household migration and vacancy.

Our sample consists of the 3,202 children between ages 11–14 in the KDSS villages and urban blocks who were residing with at least one parent at the time of the 2001 survey. In each subsequent year of KDSS data collection, there is a decline in the number of youth followed in the KDSS due to migration-related and other types of attrition of surveyed households and individuals. By 2004, 2,739 (86 percent) of the 3,202 youth enumerated in the 2001 data collection were found and reenumerated in KDSS households. Despite this attrition, the distribution of KDSS youth across geographic strata remains largely consistent from 2001 to 2004. As the multivariate analyses indicate, the type of youth who exited the sample and hence are dropped from the analysis share in common many of the characteristics of youth at risk of attrition. This pattern likely suggests a conservative bias to our estimates if we assume that school attrition and exit from the KDSS sample are inter-related phenomena.

Combining multiple rounds of the KDSS provides an annualized picture of school enrollment and attrition among Kanchanaburi's school-age population between 2001 and 2004.<sup>1</sup> While the data provide a relatively narrow window for survival analysis, and are characterized by right and left censoring, they do allow for an assessment of education enrollment spells and patterns

<sup>1</sup> Due to underenumeration of households and individuals in the initial year of KDSS data collection (2000), we begin our analysis in the year 2001.

of attrition from schooling among a large population of secondary school-age youth over a 3-year period. Analyses are restricted to youth of upper-primary and secondary enrollment ages (i.e., ages 11–14) in the initial observation period (2001) in order to focus upon those who are at particularly high risk of school attrition.<sup>2</sup>

We employ discrete-time hazard rate analysis, estimated as a discrete-time multinomial logit to model youth transitions over time into one of two statuses—exit from school or exit from the study population. The latter status frequently occurs when youth migrate out of the study area, either alone or with parents. The trichotomous dependent variable allows us to model the competing risks of exiting school and exiting the study population (Box-Steffensmeier and Jones 1997). The discrete-time multinomial logit approach relies upon annualized measures of enrollment status observed for at least 1 year and up to 3 years. Whether a youth, enrolled in 2001, drops out in a particular year is estimated for person-year units (2001–2, 2002–3, and 2003–4), and aspects of household composition and resources and the village economy are likewise assessed at the person-year unit of exposure. Having reorganized the data to make person years the unit of analysis and unit of exposure to the risk of exiting school, the sample size is increased ( $N = 8,425$ ), but standard errors are not inflated, and standard tests of statistical significance remain appropriate (Beutel and Axinn 2002).

Because reinterviews only took place in KDSS households that agreed to participate in subsequent years, we cannot verify the enrollment status of youth who exit the study population. One of the several possible explanations for attrition, in addition to residential mobility of the household or refusal to participate in subsequent surveys, is the child's movement for schooling or for work. Youth exiting the KDSS villages constitute a relatively small share of the full analytical sample; nonetheless, it is important to note that their uncertain status may introduce bias into our estimations of dropout risk.

### Summary Statistics

Summary statistics for our analytical sample—3,202 youth in the KDSS villages, living with at least one parent and between ages 11 and 14 in 2001, are shown in table 2. By way of description, we highlight several social, eco-

<sup>2</sup> In the Thai education system, most dropout occurs at key points of transition, as students move from primary to the lower secondary level or from lower secondary to the upper secondary level (Knodel 1997; Soonthornthada et al. 2001). Additionally, some adolescents who drop out of formal schooling may eventually return to complete schooling or take on vocational training in informal schools. In our sample, progression through regular secondary education tends to be contiguous, and less than 1 percent of youth in the sample dropped out and reenrolled between 2001 and 2004. These young people are not permanently censored following dropout. Rather, if and when they reenroll, they contribute a person-year record to the analysis, and their enrollment/dropout status is observed at the end of the observation year in question.

nomic, and demographic features of the sample, as well as the characteristics of village and strata within which KDSS youth reside.

About half of the analyzed youth are female, and their mean age is between 12 and 13 years. About 9 percent live in households with an immigrant parent (the majority are from Myanmar). Youth in immigrant households may or may not be immigrants themselves (questions on place of birth were only asked of persons ages 15 and older), and further investigation indicates that many KDSS youth with an immigrant parent have one Thai parent (most often the father). This pattern reflects the long-term presence of immigrant and ethnic minority populations in Kanchanaburi, especially in highland communities. It is important to note that our measure of immigrant parentage is based on resident parents only; that is, if an absent parent is foreign born and the resident parent is Thai born, the youth will not be identified as the child of an immigrant.

We assess household economic welfare through an index of asset ownership calculated according to the number and relative monetary value of 14 major consumer durable items possessed by households. The mean asset ownership score for households of KDSS school-age youth was 5 (SD 5.2), and the minimum and maximum observed scores were zero and 53, respectively. Households are then categorized according to the wealth quintile to which they belong. A series of questions indicates that household borrowing is quite common and often substantial in KDSS households. The mean amount of debt reported in households of youth in 2001 was 63,900 baht (approximately US\$1,700). However, household debt ranged widely from households with no accumulated debt (32 percent of households) to with more than 25,000 baht (32 percent of households) in debt. Borrowing occurs across the household wealth spectrum, with debt and household wealth levels positively correlated, suggesting that heavy borrowing is undertaken by relatively well-off households to advance their economic position through investment. Lack of borrowing or borrowing in small amounts appears to occur in households that struggle to make ends meet and that lack the necessary assets for more substantial borrowing.

Household resources pertinent to educational investment are not strictly monetary; they extend to the human capital and occupational status of parents. Therefore, we construct variables indicating mother's and father's level of education and occupation. The variables are categorical, indicating, for education, whether the parent has no formal schooling versus the several levels of school completion in the Thai system. The occupation status variable consisted of four categories: (1) agriculture, (2) other, and (3) not employed in the past year. The modal outcome for mothers' and fathers' education is between 1 and 6 years. For each of these variables, if the parent is absent from the KDSS household, we are unable to derive a measure of parental

TABLE 2  
CHARACTERISTICS OF ANALYTICAL SAMPLE—KANCHANABURI VILLAGE YOUTH AGES 11–14 IN 2001

	%	N
KDSS strata:		
Urban and semiurban	18.0	577
Rice field	16.1	516
Plantation	16.4	524
Uplands	31.1	997
Mixed economy	18.4	588
Gender:		
Female	49.6	1,588
Male	50.4	1,614
At least one immigrant parent in household:		
Yes	8.9	286
No	91.1	2,916
Mother's education level:		
No formal schooling	22.9	735
Primary school only (1–6 years)	44.6	1,429
Some secondary (7 to 12 years)	21.9	702
Some tertiary (13+ years)	6.6	210
Missing information on mother's education	3.9	126
Father's education level:		
No formal schooling	14.9	476
Primary school only (1–6 years)	44.1	1,411
Some secondary (7–12 years)	17.6	563
Some tertiary (13+ years)	7.5	240
Missing information on father's education	16.0	512
Mother's main economic activity:		
Not in labor force (e.g., unemployed, student, housewife)	13.2	423
Professional, managerial, clerical	3.9	124
Business owner, sales and service	12.3	393
Agriculture	58.0	1,857
Factory and manual labor, transportation	9.3	298
Missing information on mother's economic activity	3.6	115
Father's main economic activity:		
Not in labor force (e.g., unemployed, student, disabled)	2.1	66
Professional, managerial, clerical	4.3	138
Business owner, sales and service	7.9	252
Agriculture	55.3	1,771
Factory and manual labor, transportation	15.1	483
Missing information on father's economic activity	15.4	492
Household indebtedness:		
No reported household debt	31.7	1,015
Minimal quantity of debt (1–10,000 baht)	24.4	780
Moderate quantity of debt (10,001–25,000 baht)	29.1	931
Substantial quantity of debt (greater than 25,000 baht)	14.9	476
Parental marital/residential status:		
Both parents present	81.0	2,595
Married mother present, father absent	7.8	250
Separated/widowed/divorced mother present, father absent	7.5	241
Father present, mother absent	3.6	115
Any older adult age 60 or older in household:		
No	82.0	2,626

TABLE 2 (*Continued*)

	%	N
Yes	18.0	576
Average age of sample youth (years)	12.50	3,202
Average no. siblings ages 0–5	.30	3,202
Average no. siblings ages 6–12	.62	3,202
Average no. siblings ages 13–18	.38	3,202
Average household wealth index score	5.00	3,202
Village/district characteristics:		
Youth in a village with a secondary school	32	3,202
Village workforce in sales, services, manufacturing and labor	29.4	3,202
Village workforce in professional, managerial, clerical	6.3	3,202
Village workforce in agriculture	64.4	3,202
Village adults ages 18–59 not in labor force	12.2	3,202

SOURCE.—Kanchanaburi Demographic Surveillance System (IPSR 2008).

education or occupation. In such cases, the variable in question is coded as unknown/missing.

Almost 20 percent of KDSS youth in the analytical sample had an absent parent at the time of the data collection. To address the gendering of parental absence in settings of high population mobility, we construct a measure of parental presence that is sensitive to the gender of the absent parent and parental marital status. Specifically, the variable indicates whether both parents are present in the household during each survey year or whether only the mother or only the father is present in the particular survey year.<sup>3</sup> When youth are living with their mother only, we consider whether the mother is married versus divorced, separated, or widowed.<sup>4</sup> We reason that when a youth is living with just one parent who is married, the absent parent is likely to be a labor migrant. For children living in single-parent households, father absence is much more common.

We also assess household composition through four measures that describe the number of household members who are elderly (age 60 and older) and the number of coresident siblings who are preschool age (0–5), primary school age (6–12), and secondary school age (13–18). A dummy variable that indicates the coresidence of an adult over the age of 60 highlights the potential role of grandparents and other family elders in reinforcing youth schooling persistence. On average, youth in the KDSS have one sibling under the age of 18. Nearly one in five KDSS village youth have an older adult residing in their household.

<sup>3</sup> A significant number of school-age youth in the KDSS live in skip-generation households with neither parent present. Because it is not possible to derive other household structure variables (immigrant status, parental education, sibship) in such households, we have omitted these households from the main analysis. We conduct, but do not show, supplementary analyses inclusive of skip-generation households and discuss these results in the article's conclusion.

<sup>4</sup> Due to the small number of cases of children residing with a father only, we elect to aggregate youth in mother-absent households to include those with both married and widowed/divorced/separated fathers.



The KDSS involved a census of all resident household members in the 100 study communities each year, making it possible to construct annualized measures of the adult resident labor force structure from 2001 to 2004. Specifically, we calculate the share of the resident village workforce engaged in the following three broad sectors: agricultural employment; professional, managerial, and clerical employment; and sales, services, manufacturing, and labor employment. We also calculate the percentage of resident adults who were out of the labor force (but not engaged as students or housewives) in the year of the data collection. Labor force structure is calculated by determining the primary occupation of resident adults in each village and aggregating workers, by occupational sector, to the level of the village/district. Across KDSS villages, agriculture predominates with an average of around 64 percent of their workers engaged in agriculture. Proportions of workers in services/labor and professional/managerial sectors vary markedly across villages, with a mean across study villages/districts of 29 percent and 6 percent, respectively.

#### **Multivariate analyses**

We model youth school transitions with a categorical dependent variable indicating whether school-age youth remain enrolled, drop out of school, or exit the KDSS study in each year between 2001 and 2004.<sup>5</sup> The loss to follow-up inherent in panel studies is addressed by including study attrition as an outcome in our models. Attrition is relatively infrequent (i.e., approximately 10 percent of person-year records) but selective, thus we feature it in our models for the sake of completeness.<sup>6</sup> In order to focus on the research questions at hand, we emphasize the predictors of school attrition in our discussion as compared to the reference outcome of persistent enrollment.

Person-year observations are not independent but, rather, clustered at the level of the household and the village. We employ robust standard error estimation to address potential bias in estimation due to clustering at the highest level of aggregation—that of the village/district. Discrete-time multinomial logit results, shown in table 3, are represented as exponentiated coefficients, or relative risk ratios (RRRs), the analogue to odds ratios (ORs) within multinomial logistic regression. For simplicity, RRRs greater than one indicate a positive effect of the independent variable (compared to the reference category) on the dependent variable; RRRs less than one are indicative of a negative effect.

<sup>5</sup> Although child migration is of main interest, we are not equipped to disaggregate youth who attrite from the sample into those that have migrated out of the KDSS communities and those that have been lost to follow-up for other reasons. Hence, we do not go to great lengths to interpret the results for youth sample attrition. We do present the entire model, however, for the sake of methodological clarity.

<sup>6</sup> Youth who attrite from the sample are less affluent, more likely to have immigrant parents, and more likely to reside in urban, semiurban, and upland villages (data available upon request).

Model 1 provides robust support for hypothesis 1, and it carries across subsequent models. That is, youth whose parent(s) are immigrants experience odds of school attrition about three times greater than youth whose parents are both native-born Thais. That immigrant status is emerging as an important and divisive line of stratification in Thai society has been observed elsewhere (Chantavanich 1999; Huguet and Punpuing 2005). Our analyses reveal that foreign-born status is a salient facet of social position with a sharply negative effect on youth schooling investment. Under most circumstances, youth living in Thailand but lacking birth registration cards have limited access to public schooling. While children of immigrants are entitled access to schooling, nuanced forms of discrimination and segmentation of labor markets may make the costs of secondary and higher levels substantial and the returns uncertain and limited. The elevated levels of attrition among non-Thai children in Thailand reveals the impact of globalizing cross-border migration in creating new lines of inequality and new barriers to universalizing secondary schooling across the country.

Our second and third hypotheses predicted that separation from parents, especially mothers, will be inversely related to educational investment and higher dropout rate. The results for parental residence status suggest that the pervasive emigration from Thailand's rural areas adversely impacts youth schooling. As mentioned above, supplemental analyses indicated a significant disadvantage in school investment, as indicated by greater odds of dropout among youth in households where neither parent is present. We also see that children living in mother-absent households are more likely to drop out of school than those with both parents present ( $OR = 2.84$ ), which supports our second hypothesis. Where fathers are absent, either in cases of divorce/separation or emigration, we do not observe a statistically significant difference in the odds of enrollment as compared to youth in households with both parents present. In general, these results suggest that various forms of parental absence, especially migration patterns that deprive school-age youth of mothers' presence, appear to weaken investment in schooling and heighten the odds of attrition. While the socioeconomic and geographic mobility of women who spread across Thailand during past decades often positively impacted women's schooling and earnings prospects and provided income gains to migrant women's families, the education outcomes of their children may be hampered by the gendered impacts upon family structure, as well as the schooling aspirations of children who have seen their mothers leave home to earn a living.

The results for household wealth and household borrowing in model 1 further indicate the importance of resource constraints in shaping child schooling investment decisions. Consistent with hypothesis 4, we find that household borrowing has a significant, negative association with attrition rates. Specifically, youth from households with moderate and high levels of

TABLE 3  
DISCRETE-TIME MULTINOMIAL LOGIT: PREDICTORS OF SCHOOL DROPOUT (VERSUS STILL ENROLLED),  
SCHOOL-AGE YOUTH AGES 5–14 IN KDSS VILLAGES, 2001–4

	Model 1		Model 2		Model 3	
	Drop-out	Attrite from Sample	Drop-out	Attrite from Sample	Drop-out	Attrite from Sample
Immigrant parent(s) in household	3.13*** (.62)	1.09 (.51)	2.80*** (.63)	1.06 (.61)	2.91*** (.61)	.99 (.59)
Parent status (ref.: both present):						
Married mother present	.92 (.18)	.92 (.80)	.93 (.18)	.91 (.82)	.91 (.18)	1.00 (.90)
Divorced/separated/widowed mother present	.77 (.16)	2.56 (1.45)	.75 (.16)	2.40 (1.42)	.76 (.15)	2.90 (1.73)
Married father present	2.67*** (.82)	5.63* (4.64)	2.83*** (.88)	6.29*** (5.03)	3.02*** (.79)	6.77*** (3.79)
Divorced/separated/widowed father present	3.64*** (1.27)	7.68*** (4.88)	3.80*** (1.38)	8.59 (5.46)		
Amount HH debt (ref.: no reported HH debt)						
Minimal (1–10,000 baht)	1.23 (.15)	1.49 (.59)	1.20 (.14)	1.46 (.58)	1.19 (.14)	1.47 (.61)
Moderate (10,000–25,000 baht)	.77** (.08)	.73 (.26)	.71*** (.07)	.75 (.27)	.71*** (.07)	.75 (.29)
Substantial (GT 25,000 baht)	.41*** (.06)	.41 (.26)	.39*** (.05)	.40 (.26)	.39*** (.05)	.41 (.27)
Village has secondary school (ref.: no secondary school)			.78 (.16)	1.02 (.50)	.77 (.15)	1.01 (.49)
% of resident adults employed in:						
Sales, services, manufacturing and labor jobs			1.00 (.01)	1.01 (.02)	1.00 (.01)	1.01 (.02)
Professional, managerial, clerical jobs			.95*** (.01)	1.00 (.04)	.95*** (.01)	1.04 (.04)
Not in labor force			1.01 (.01)	1.01 (.03)	.99 (.01)	1.03 (.03)

Female × resident adults employed in:						
Sales, services, manufacturing and labor jobs					.98*	1.02
Professional, managerial, clerical jobs					1.01	.91
Not in labor force					1.03**	.94
Female × wealth:						
Quintile II					.60**	.15
					(.12)	(.16)
Quintile III					.50**	.89
					(.11)	(.62)
Quintile IV					.54**	7.40
					(.12)	(7.89)
Quintile V					.51**	1.06
					(.11)	(1.26)
Female	.69***	.64	.70***	.63	.94	2.36
	(.07)	(.17)	(.07)	(.17)	(.25)	(1.98)
Age	1.91***	.94	1.94***	.94	1.95***	.92
	(.07)	(.15)	(.07)	(.15)	(.07)	(.14)
Strata (ref.: urban and semiurban):						
Rice field	1.10	.44	.54**	.57	.54*	.59
	(.20)	(.27)	(.15)	(.43)	(.14)	(.45)
Plantation	2.34***	1.30	1.10	1.86	1.11	1.97
	(.54)	(.86)	(.32)	(1.65)	(.32)	(1.70)
Uplands	.79	1.91	.40***	2.54	.39***	2.86
	(.13)	(1.14)	(.11)	(2.04)	(.11)	(2.16)
Mixed economy	2.01***	1.79	.98	2.32	.97	2.41
	(.39)	(1.00)	(.25)	(2.01)	(.24)	(1.95)
Mother's education (ref.: 1–6 years):						
None	1.02	1.27	1.01	1.29	1.00	1.30
	(.07)	(.40)	(.08)	(.40)	(.08)	(.41)
7–12	1.01	.78	1.01	.78	1.01	.82
	(.14)	(.49)	(.14)	(.47)	(.14)	(.53)
13 or more	.49	.00***	.58	.00***	.57	.00***
	(.23)	(.00)	(.28)	(.00)	(.28)	(.00)
Missing/DK	.97	1.11	.96	1.10	.96	1.12
	(.07)	(.32)	(.07)	(.31)	(.07)	(.32)
Father's education (ref.: 1–6 years):						
None	1.31*	1.58	1.34*	1.54	1.35**	1.55
	(.15)	(.70)	(.16)	(.70)	(.16)	(.73)
7–12	.94	1.45	.96	1.45	.97	1.54
	(.11)	(.77)	(.11)	(.76)	(.11)	(.81)

TABLE 3 (Continued)

	Model 1		Model 2		Model 3	
	Drop-out	Attrite from Sample	Drop-out	Attrite from Sample	Drop-out	Attrite from Sample
13 or more	.42** (.11)	.00*** (.00)	.45** (.12)	.00*** (.00)	.44** (.12)	.00*** (.00)
Missing/DK	1.14 (.11)	1.46 (.58)	1.17 (.11)	1.45 (.57)	1.17 (.11)	1.46 (.61)
Mother's occupation (ref.: agriculture):						
Not in labor force (e.g., unemployed, student, housewife)	.82 (.11)	1.70 (.66)	.83 (.11)	1.61 (.68)	.81 (.11)	1.68 (.66)
Professional, managerial, clerical	.36* (.15)	1.12 (1.22)	.47 (.19)	1.17 (1.25)	.46 (.19)	1.41 (1.39)
Business owner, sales and service	.96 (.18)	1.80 (.69)	1.06 (.21)	1.67 (.61)	1.04 (.20)	1.56 (.58)
Factory and manual labor, transportation	.82 (.15)	1.69 (.38)	.85 (.16)	1.48 (.82)	.84 (.16)	1.54 (.90)
Missing information	.58 (.15)	1.35 (.74)	.59 (.16)	1.21 (.63)	.65 (.16)	1.38 (.70)
Father's occupation (ref.: agriculture):						
Not in labor force (e.g., unemployed, student, disabled)	.97 (.33)	.00*** (.00)	.94 (.33)	.00*** (.00)	1.01 (.36)	.00*** (.00)
Professional, managerial, clerical	.47* (.17)	3.52* (2.03)	.53 (.18)	3.14* (1.84)	.54 (.18)	2.79 (1.46)
Business owner, sales and service	.64* (.13)	.30 (.29)	.73 (.15)	.28 (.26)	.74 (.15)	.23 (.22)
Factory and manual labor, transportation	.82 (.12)	.59 (.26)	.90 (.13)	.53 (.24)	.90 (.13)	.45 (.22)
Missing information	.98 (.17)	.95 (.43)	1.03 (.18)	.93 (.51)	1.03 (.18)	.77 (.42)
Household wealth quintile (ref.: lowest 20%):						
Lowest (20–40)	.73** (.09)	.64 (.28)	.78* (.10)	.63 (.29)	.99 (.17)	1.20 (.64)
Middle (40–60)	.4*** (.05)	.40** (.14)	.42*** (.06)	.39** (.14)	.59** (.11)	.43 (.21)

Top (60–80)	.31*** (.05)	.20*** (.09)	.33*** (.05)	.19*** (.09)	.44*** (.08)	.05*** (.04)
Top (80–100)	.19*** (.03)	.10*** (.06)	.22*** (.04)	.09*** (.05)	.30*** (.06)	.09*** (.07)
No. of siblings:						
Ages 0–5	1.32*** (.11)	1.75** (.38)	1.30** (.11)	1.77** (.38)	1.29** (.11)	1.71* (.38)
Ages 6–12	.98 (.06)	1.12 (.21)	.97 (.05)	1.13 (.22)	.97 (.06)	1.17 (.24)
Ages 13–18	1.19*** (.06)	1.12 (.23)	1.20*** (.06)	1.10 (.23)	1.19*** (.06)	1.10 (.21)
Any adult age 60 or older in HH (ref: none)	.86 (.08)	2.54*** (.57)	.86 (.08)	2.57*** (.59)	.85 (.08)	2.60*** (.62)
<i>N</i>	8,383		8,383		8,424	
Pseudo <i>R</i> <sup>2</sup>	.23		.24		.24	
Log pseudolikelihood	−4,131.93				−4,069.6	
BIC						

SOURCE.—Kanchanaburi Demographic Surveillance System (IPSR 2008).

NOTE.—All columns are relative risk ratios/robust SE. GT = greater than; SE = standard error; DK = don't know; HH = household; BIC = Bayesian information criterion.

\*  $P \leq .05$ .

\*\*  $P \leq .01$ .

\*\*\*  $P \leq .001$ .

borrowed capital are less likely to drop out than youth from households with low or no debt ( $OR = .77$  and  $.41$ , respectively). Several possible explanations exist for this relationship. If possessing resources is a prerequisite for taking on debt, household debt levels may serve as a proxy for dimensions of wealth not captured in the household index score. Additionally, following from the new household economics perspective (e.g., Lauby and Stark 1988), household borrowing may free up capital constraints within households, thus allowing for continued investment in youth schooling. Either way, it is important to note the significant, independent effect on enrollment associated with borrowing, above and beyond the effects of household wealth and human capital.

Model 2 elaborates the importance of local school presence and labor market structures for youth schooling attrition. First, we point to the noticeable change in the results for geographic strata, which in model 1 had indicated that urban and semiurban youth were more likely to be enrolled compared to youth in other strata. The changes across models 2 and 3 point to the underlying household and community structural factors contributing to youth enrollment advantages in the urban and semiurban communities. Specifically, the urban advantage relative to upland areas appears to derive from household wealth and family structure differences, as well as labor market structural differences across these types of places. The urban advantage relative to youth in the other strata (rice field, plantation, and mixed economy) is linked to labor market structural differences, the presence of schools (and perhaps other, unobserved variables correlated with these measured aspects of community).

In terms of local economic structure, our results are consistent with previous research finding that attrition is greater in places where agriculture predominates, whereas occupational structures that demand more highly skilled workers tend to lower the odds of attrition. We observe that the odds of attrition are significantly lower among KDSS youth in villages with relatively large proportions of local labor force employed in professional, managerial, and clerical positions (and, by extension, relatively small shares engaged in agriculture). These results are consistent with hypothesis 5 and the family economy perspective, in particular the notion that the possibility of future employment in the modern sector provides powerful incentives for investment in youth secondary schooling (Buchmann and Brakewood 2000). While employment outcomes often involve internal migration within Thailand, the local setting in which youth grow up and attend school is, no doubt, a salient context for the formation of educational aspirations and future employment plans.

In model 2, the effect of having a secondary school in the village falls short of statistical significance. Other studies (e.g., Curran et al. 2004) have shown school proximity to be significant for enrollment in other regions of

Thailand, suggesting our dichotomous measure of presence in the village may not adequately capture access to schools.

The results across all three models in table 3 are consistent with hypothesis 6, indicating that girls have significantly lower odds of school attrition than boys in Kanchanaburi ( $P < .001$ ). From the family economy perspective, this suggests that parents perceive more certain and greater returns through investment in daughters' schooling as compared to sons'. In Kanchanaburi, as elsewhere in Thailand, girls in most settings are no longer disadvantaged relative to boys with respect to secondary enrollment, a trend that reflects expanded access to schools in rural communities and changing labor force opportunities open to educated young women. We elaborate on the gendering of enrollment below.

To test our seventh hypothesis, model 3 adds interactions between child gender and local labor force structure, as well as household wealth. Improved goodness of fit statistics (Bayesian information criterion [BIC]) and statistically significant interaction terms lead us to conclude that village- and household-level contexts differently impact girls' and boys' odds of schooling persistence. The advantage experienced by young women in schooling persistence does not characterize all communities equally but, rather, emerges more strongly in villages where a relatively large share of the adult resident population is engaged in manufacturing, production, and service sector employment. Such settings are likely to offer opportunities for young workers and especially young female workers for whom factory production jobs are seen as a suitable form of employment and means of exiting poor-paying agricultural and manual labor. Furthermore, where employment opportunities are relatively less numerous, as indicated by the share of working-age adults in the village/district who are out of the labor force, girls advantage in enrollment is not as pronounced as in settings where opportunities are more abundant. These results add nuance to previous work on the gender gap in Thailand's education system, demonstrating that gender differences in school persistence are related to local economic opportunities, which vary significantly across villages and urban districts due to differential patterns of economic development. It seems that girls are most likely to outpace boys' educational achievements in settings where their future nonagricultural employment opportunities are plentiful and, as such, their potential contributions to the family economy are enriched through attainment of advanced schooling.

Model 3 also suggests that the extent of girls' enrollment advantage over boys varies according to household wealth level, with girls from wealthier households exhibiting the strongest enrollment odds vis-à-vis their male counterparts. Previous research has shown that gender differences have abated or even changed direction in Thailand in recent decades (Knodel and Jones 1996; Knodel 1997; Curran et al. 2004). The analyses presented here add to that body of work by showing that greater wealth further enhances an en-



rollment gap that favors girls in Kanchanaburi. Complementing Williams and colleagues' finding that, in the absence of adequate resources, parents in poor households exercised preference for educating sons as opposed to daughters (Williams et al. 1997), we find that adequacy and abundance of resources actually leads to a stronger preference for investing in girls' education. That girls' attrition odds are particularly diminished relative to boys in the top household wealth quintiles suggests that Kanchanaburi's educational gender gap reversal is being enhanced by the schooling investment decisions of relatively well-off households.

Several of the results for our control variables support family economy theory principles and thus warrant brief mention. As expected, parents' education and occupation are each significant predictors of children's enrollment status. Specifically, having a mother and/or a father with upper secondary schooling (i.e., 13 years or more) lessens the odds of child attrition ( $OR = .35$  and  $.28$ , respectively) as compared to the reference group whose mothers and fathers have only some primary schooling (i.e., 1–6 years). Occupational status of parents is also significant to child schooling investments, with children's odds of dropping out being significantly lower if mothers or fathers are employed outside of agriculture (reference category), specifically within the professional, managerial, and clerical sector or the entrepreneurial, sales, and service sector. School attrition odds are significantly lower for KDSS youth from wealthier households, with the odds of a child dropping out declining significantly across each household wealth quintile.

We also observe that the number and age of siblings impacts youth schooling: preschool and secondary school-age siblings are each positively correlated with the risk of school attrition, whereas siblings of primary school age have a trivial impact on the odds of attrition. These results do not suggest a straightforward picture of large sibships diluting educational resources but, rather, a combination of birth order, size of sibship, and the age-specific costs of schooling. Finally, the association between older adults resident in the household and the odds of dropout falls short of statistical significance. However, we note that numerous Thai youth with two migrant parents live in skip-generation households with a grandparent or other relative providing care and supervision (Knodel et al. 2007). Because the current analysis is limited to youth residing with at least one parent, we conducted a supplemental analysis including youth in households with no parent present (results not shown). These results suggested that children in households with no parents present are more likely to drop out of school than those with both parents present. And, when skip-generation household status is considered, a positive effect of coresident older adults on youth school enrollment is observed, suggesting that when parents are absent, resident older adults (i.e., grandparents) make choices about resource allocation, likely guided and supported

by the youth's migrant parents, which support grandchildren's well being, especially their education.

### Discussion

The World Bank maintains that trends in access and equity will determine if Thailand's education system unlocks potential or stifles further economic expansion and human development (Benveniste 2006). As in many other poor and middle-income countries, achieving universal secondary education remains an elusive goal, and not all Thai youth have been equal participants in the country's educational expansion. In this article we have attempted to show how economic globalization, felt through family and community processes, structures educational trajectories for youth. We find that widespread population mobility and the adaptive household structures formed by migrants weigh heavily in the attrition process. Furthermore, our results confirm that the divergent patterns of economic development unfolding across Thai communities shape not only local economic opportunities but also family decisions about school investment, which in turn will shape future patterns of social stratification.

Our analyses also provide further evidence of a closure, and reversal, of the gender gap in Thai educational attainment. An enrollment gap favoring girls is robust across households and communities of Kanchanaburi. To attest to the robustness of this gender gap, and the salient role of household and community context in shaping attrition, we provide a set of predicted probabilities for attrition for girls and boys in wealthy (highest wealth quintile) and poor households (lowest wealth quintile) across three community types. The hypothetical community types are either agriculture dominant, mixed agriculture/nonagriculture, or services-manufacturing dominant. Figure 1 demonstrates that the gender gap favoring girls is maintained across these three community types, with youth in wealthy households and services-manufacturing economies being the least likely to drop out of secondary schooling. Interpreted in light of the family economy perspective, which views the family as an intermediary organization between macroeconomic change and individual outcomes (this line of thought in Horan and Hargis [1991] echoes Tilly [1979]), girls' greater odds of enrollment compared to boys, especially in settings where manufacturing and service sector jobs predominate, reflect their relatively promising job opportunities and returns to education. And household wealth clearly remains a dominant explanation for attrition, irrespective of child gender.

While household human capital and wealth remain salient predictors of educational attainment, other categories of social stratification, the by-products of globalization, have arisen in differentiating patterns of school attrition. As Thailand becomes an increasingly dominant destination of South-South migration from countries such as Laos, Cambodia, and especially Myanmar,

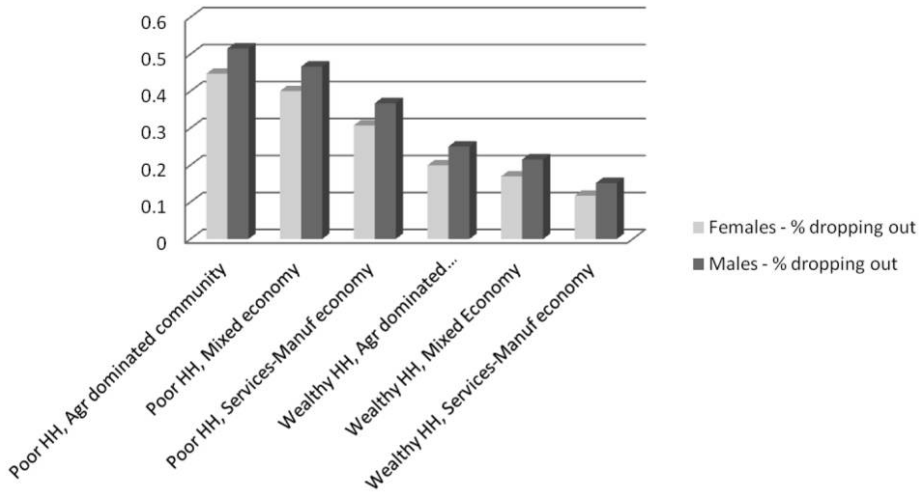


FIGURE 1.—Predicted probability of school attrition by child gender, household wealth, and community labor market structure.

child immigrants and the children of immigrants are becoming more and more numerous in Thai society. Although children born in Thailand to immigrants or immigrant-native mixed couples are entitled by law to education and other rights of citizens, research to date suggests that having an immigrant background poses obstacles to integration and socioeconomic mobility (Jampaklay, Korinek, and Ratchasee 2010). Ours is one of few analyses to reveal the poor schooling outcomes of youth whose parents are immigrants. That the children of immigrants are particularly prone to exit school at early ages suggests myriad elements of disadvantage, from low levels of human capital in the parental generation to institutional policies and everyday practices that limit non-Thai youth access to schools. Consistent with family economy theory's emphasis on resource constraints upon child schooling investment, we find that, in addition to household asset wealth, there is a significant, positive relationship between household indebtedness and child enrollment. One interpretation of this finding is that loans, like remittances, lessen capital constraints and provide alternative sources of income that boost families' capabilities to fund child schooling. Such results have relevance for policy making, suggesting a lever for policy makers and the likely gains in educational investment when household capital constraints are relaxed through programs that increase access to loans. Determining how and whether access to loans, in particular loans earmarked for education, improves investment in schooling in middle-income countries among poorer families warrants further exploration.

Social scientists have only begun to delineate the pathways through which migration and parental absence influence youth schooling trajectories (e.g., Kandel and Kao 2001; Jampaklay 2006; Kuhn 2006). By disaggregating parental marital and residential status in the households of Kanchanaburi youth, we determine that not all forms of parental absence weigh similarly upon youth schooling. In particular, the youth living only with a father, and whose mothers are absent either due to divorce, separation, or widowhood, appear to be at greatest risk of exiting schooling prematurely. The gender of the parent removed from the household by migration or divorce is consequential for the fate of children's schooling; this may be due to the type of economic decision making the resident parent makes, the nature and quality of supervision and attention she or he gives to students, or the education-related messages that a youth receives who has a migrant mother versus father. As others have shown in developing societies of Asia and elsewhere, the consequences of the globalization of labor for child well being may be negative and unforeseen if it continues to create mother-absent households. Further research is warranted on the sizable population of youth in developing countries who grow up in households where one or more parents are persistently absent and who rely heavily upon grandparents for support and supervision (Knodel et al. 2007). Clearly, rural-urban migration has a transformative impact upon rural Thai social structures (De Haan and Rogaly 2002), and one pathway is via the parental gaps created in rural migrants' households.

Patterns of development diverge widely across regions, even within provinces of Thailand, and these divergent patterns frame the decisions made by youth and their parents about the long-term and short-term gains of educational investment. Further, development patterns, at the local and broader societal levels, serve as the contexts within which young adults and their parents make decisions about schooling and employment, and these contexts are often highly gendered. It is in those settings of Thailand where there are relatively certain, long-term economic gains to be garnered through the advanced schooling of girls, that is, settings where there is a relatively large base of manufacturing and services positions offering opportunities to female workers, that the gender gap in enrollment has not only diminished but has come to favor girls.

Methodological strengths of the present article derive from the longitudinal quality of the data, implementation of the KDSS across 100 diverse communities, and inclusion of questions on matters understudied yet relevant to family economy, such as immigration status and household borrowing. The nature of the data also results in several limitations. While the longitudinal design aids in clarifying the causal pathways between student outcomes and their family and community context, it is also potentially biased due to differential attrition from the KDSS communities and the annual community census data collection. We have attempted to address this attrition

by modeling it as an outcome. Our diagnostic assessments indicate that the population that remains in place in the KDSS villages and districts over the 4 years of observation is relatively well-off in terms of household assets and human capital. There are also proportionately fewer immigrant households among those that remain for the 4 years of observation. Hence, attrition's impact on the data collection tends to leave in place a population of young people that is less likely prone to drop out from school as compared to the full population of initial residents included in the baseline census.

Another limitation derives from the fact that the KDSS collected data at the level of the household; therefore, when siblings or parents have departed the household, we are not equipped to comment on their characteristics (e.g., the education level of migrant mothers, or total counts of siblings, including those residing elsewhere). Furthermore, the KDSS did not follow up with households and individuals whose attrition involved departure from the study area, and departure may be correlated with the dependent variable, thus biasing our results. In particular, youth who left the study area may have done so in step with dropping out of school (and looking for work) or in step with enrolling in school at a great distance from the parental household. Finally, the 4-year time frame allows only a small window on schooling transitions—ideally we would have complete, uncensored information on enrollment and attrition covering youth's entire schooling career.

## Conclusion

To meet the widely espoused goal of “education for all” requires realism, and as Sperling (2006, xiv) notes, “realism starts with understanding that in poor nations, which lack legally enforced compulsory education, parents are the ultimate decision makers as to whether children attend school.” By analyzing the contexts of the household, the community, and globalizing forces that shape such decision making around school enrollment or attrition in one community struggling to realize education for all, we hope to offer new insights to scholars and policy makers grappling with questions about barriers to universal basic education.

In Thailand, as in many other newly industrialized developing societies, gender gaps in schooling enrollment at the primary and secondary level have closed and reversed (Knodel and Jones 1996; Hannum 2005; Grant and Behrman 2010). Our findings provide further evidence for this trend and point to its robustness. We find that girls are more likely to be enrolled in secondary school than boys, across poor and wealthy households; across communities that are rooted in agriculture; in mixed economic structure; and in economies dominated by services, professions, and other nonagricultural pursuits. The closure and reversal of Thailand's gender enrollment gap in part reflects the absence of a strong gender preference for boys that has hindered development in other poor and middle-income countries (Wong-

boonsin and Prachuabmoh 1995). Yet, sizable gaps in educational achievement remain, both long-standing ones related to socioeconomic resource disparities and novel ones related to mobility and migration, despite significant national commitment to educational expansion.

Turning the corner toward universal secondary enrollment demands keeping an eye on gendered dynamics (and especially the interaction of child gender with household and community context), as well as shifting attention toward socioeconomic, rather than gender-based, obstacles. In the early twenty-first century, what aspects of children's family and local contexts are pertinent to decisions about investment in education? What are the remaining barriers in a society that has passed legislation making 12 years of education the national standard? Such queries are frequently framed from a human capital or family economy perspective, with an emphasis on parental education and family wealth as prominent factors influencing the financial and opportunity costs associated with continued school enrollment. In the globalized economy, equitable education opportunities continue to be shaped by family social class, as represented, for example, through parental education and wealth. Yet, not all youth from disadvantaged families drop out, and some drop out despite having significant human capital and financial resources at their disposal. Another variable oftentimes regarded as salient in youth schooling attainment is rural/urban residence, but this crude dichotomy for place leaves many questions unanswered and glosses over the diversity of educational and occupational opportunities encompassed by rural and urban locales.

The educational fates of Kanchanaburi youth reiterate earlier findings on the importance of educational decision-making contexts in shaping developing-world disparities in school attainment (Buchmann 2000). In Kanchanaburi, the household and community are salient contexts that inform decision making, which results in early attrition for many, and they are contexts being differentially impacted by the unevenness of development and a mobile labor force inherent in early twenty-first-century globalization. One broader implication of the research is that inequalities that have long persisted in education might be overturned but only through policies and programs that diminish household-level financial constraints on enrollment, alleviate the disruptions in youth households wrought by migration and other processes of macro-level change, and develop employment opportunities in which the returns to education are clear and in excess of the opportunity costs met by students and their families. While national institutions, like education systems, have the potential to buffer youth from the forces of globalization, they may, in fact, operate to further exacerbate the increasingly unequal and uncertain opportunities wrought by global forces (Mills and Blossfeld 2005). In light of the finding that sizable segments of Kanchanaburi youth are not completing secondary schooling, and that youth who drop out

originate disproportionately from families disadvantaged in myriad ways, it is clear that further reforms that address patterns of development and education access are needed before Thailand's system of universal secondary education is fully realized.

For Thailand, and other newly industrialized countries, moving closer to universal secondary enrollment and tackling persistent gaps in educational achievement are key challenges to continued economic development, political stability, and global integration. Our findings point to several previously overlooked groups whose elevated risks of dropping out from secondary schooling need to be addressed for universal secondary schooling to be achieved. As Thailand increasingly becomes a country of immigration, the finding that youth with non-Thai parents are uniquely prone to drop out from secondary schooling is particularly important for policy makers. Without programs to socially integrate the children of immigrants and ensure their equal access to schooling, universal secondary enrollment is likely to remain out of reach, and new lines of inequality separating Thai and non-Thai youth may arise. To address the gap between native-born and immigrant children in the United States, scholars have suggested that policy makers ensure quality public schools, support early childhood education, and provide resources for English proficiency (Haskins, Greenberg, and Fremstad 2004). Further research is needed to understand the most significant barriers to school completion among youth with foreign-born parents in Thailand and whether parallel policies might apply in this setting.

That population mobility, especially when it involves mothers moving as labor migrants, is associated with school attrition is also cause for policy-making concern. While other studies have found that migrant remittances can shore up household resources and thereby enable funding for school enrollment, we find that maternal absence lessens the odds of enrollment. Aside from programs and incentives to encourage spatially dispersed, rural economic development, and thereby lessen out-migration by parents with school-age children, policies that provide supervision and encouragement that reinforce the long-term payoffs of advanced schooling in areas of high out-migration might lessen school attrition among youth whose own parents are absent.

Finally, our results indicate a significant, positive effect of household borrowing on secondary enrollments. Similar findings have emerged in other low- and middle-income countries (Flug et al. 1998; Ersado 2005). Given these results, policy makers may consider greater investment microcredit and education loan programs. In sum, while the disruptions and disparities wrought upon communities and households by economic globalization may not be halted or overturned, creative policy making may reinforce the value of schooling and address its costs among youth whose economic situations,

household composition, and local surroundings are not conducive to further investment in secondary school completion.

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